PNM San Juan Generating Station
Refined BART Visibility Results
November 5, 2007

Introduction

PNM submitted its BART engineering and modeling application dated June 6, 2007 for San Juan Generating Station (SJGS) Units 1-4. The conclusion of this study was that the SCR and SNCR/SCR Hybrid systems minimally impact visibility improvements and would require significant capital expenditure and modifications that will impact many areas of the plant including boiler draft systems, air heater performance, SO_3 emissions, and ash handling. Therefore, LNB, OFA and NN were recommended as BART for NO_X control on the SJGS units. Since the submittal of the BART report, PNM has investigated additional refinements to the BART CALPUFF air dispersion modeling analyses. These refinements include nitrate repartitioning and more realistic ammonia background concentrations. These two refinements are described in more detail below.

Nitrate Repartitioning

The first refinement for the SJGS BART visibility analyses was to better account for the amount of particulate nitrate (NO_3) by limiting the available ammonia when individual unit puffs overlap. The original visibility modeling did not incorporate repartitioning of available ammonia (MNITRATE = 0). However, the refinements did not allow each overlapping puff(s) to use the full ammonia background value but instead only a portion of the ammonia available (MNITRATE = 1). This concept is reflected in Section 3.1.2.6 of the WRAP protocol.

Ammonia Background Concentration

As described in Section 8.1 of the BART application, the air dispersion modeling analyses presented were conducted in accordance with the *CALMET/CALPUFF Protocol for BART Exemption Screening Analysis for Class I Areas in the Western United States* dated August 15, 2006, (hereinafter referred to as the WRAP Protocol). Specifically, the SJGS BART modeling was performed using the same high fixed background ammonia level of 1 ppb that was used for the initial modeling performed by WRAP RMC. However, there is limited real-time or historic ambient concentration information for ammonia within the modeling domain and at the individual Class I areas from sources such as CASNET which could be used to verify whether the assumed 1 ppb ammonia background concentration is representative. In fact colder temperatures and limited

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agriculture activity, among other variables, could limit the amount of ammonia present in the ambient atmosphere and that which would be available to chemically react to form sulfates and nitrates to reduce visibility. Section 3.1.2.6 of WRAP protocol indicates that the 1 ppb value would be initially used and the issue revisited at a later time:

> *Thus, based on the fact that western Class I areas tend to be either more arid or forest land than grassland we proposed to initially use a 1 ppb background ammonia value for the CALPUFF runs. We will then revisit the background ammonia values for the Class I areas for the post processing step and provide the CALPUFF output to the States so they can investigate alternative background ammonia values if desired.*

No additional information from the WRAP regarding refined ammonia background concentrations was available. Therefore, an investigation was completed to locate more realistic ammonia background values. The Sithe Global Power, LLC's Desert Rock Energy Facility and the Toquop Energy Project visibility analyses located in the southwestern U.S. used variable monthly background ammonia concentrations. Based on this information, refinements to SJGS's BART modeling reflected these previously used values which have been included in Table 1 for reference.

Table 1
Variable Monthly Ammonia
Background Concentration

Month	Background Ammonia Concentration (ppb)
January	0.2
February	0.2
March	0.2
April	0.5
May	0.5
June	1.0
July	1.0
August	1.0
September	1.0
October	0.5
November	0.5
December	0.5

Visibility Summary

Based on the aforementioned refinements in background ammonia concentrations and nitrate repartitioning revised CALPUFF visibility modeling was performed. It is important to note that all other modeling options as described in the BART application were unchanged. The results of the refined visibility modeling, assuming the same control technology is installed on all four units, are illustrated in Tables 2 and 5. These tables summarize the scenarios and the maximum visibility (deciview) impact seen at any of the 16 Class I areas at any time over the 2001 to 2003 period. The results of this analysis, using the aforementioned refinements, indicates a decrease in visibility impact at each of the 16 Class I areas from those visibility impacts indicated in the BART application document. Of particular interest, the visibility impacts at Mesa Verde represent the maximum visibility impact at any of the Class I areas. However, these impacts also decrease from those impacts previously reported. For the two control scenarios, the visibility impacts are greater than the baseline's visibility impact. Thus, there is no visibility improvement realized.

The maximum visibility (deciview) improvement seen at any of the 16 Class I areas at any time over the 2001 to 2003 period is illustrated in Table 6 for each scenario. The expected degree of visibility improvement for each control scenario for each unit analyzed was determined by the difference in the maximum visibility improvement for each receptor at each of the sixteen Class I areas. Again, it is important to note that the control technology associated with the consent decree formulated the SJGS's baseline case for the purposes of this analysis. Additionally, the cost-effectiveness for the potential BART control technologies from the BART application were used to for the determination of the visibility improvement cost-effectiveness in \$/deciview (\$/dv). Three major scenarios are shown in the visibility improvement cost effectiveness summary in Table 6:

1.0 Pre-consent decree to consent decree.
2.0 Consent decree to additional NO_x control technology alternatives scenario.
3.0 Pre-consent decree to additional NO_x control technology alternatives scenario.

These maximum visibility improvements between the consent decree and the two control scenarios range from 0.01 dv to 0.38 dv of expected visibility improvement above the consent decree technology baseline case. The results indicate that adding additional NO_x control technology beyond the consent decree does not yield a significant visibility improvement (> 0.5 dv) at any Class I area.

Based on the visibility improvement modeled and the total annual cost evaluated in the impact analysis stage of the BART application document, the cost-effectiveness for visibility improvement (annual cost per improvement in visibility, \$/dv), was determined for SJGS. The costs for installation of SCRs for all four units is \$256 million/dv while the costs to install a hybrid system is \$587 million/dv. These minimal visibility improvements do not merit the large capital expenditure required to install SCR or SNCR/SCR Hybrid. In addition to the prohibitive cost associated with SCR and SNCR/SCR Hybrid, there are other important reasons that LNB, OFA and NN should be considered BART for the SJGS units. First, the LNB, OFA and NN systems being installed to meet the consent decree are state-of-the-art combustion controls. State-of-the-art combustion controls comprising of LNB, OFA and NN technologies were used to form the basis for the BART presumptive limits for NO_x in the BART guidelines. Second, installation of SCR or SNCR/SCR Hybrid uses ammonia to reduce NO_x emissions. Specifically, in a SCR system, ammonia is injected into the flue gas stream just upstream of a catalytic reactor. The ammonia molecules in the presence of the catalyst dissociate NO_x into nitrogen and water. Any unreacted ammonia passes through the reactor and out the stack as ammonia emissions or ammonia slip. This additional ammonia would then be available to add to the ammonia background concentration, chemically react to form nitrates and sulfates and potentially further increase the visibility impacts at the Class I areas. The additional ammonia slip was not considered in this analysis. Finally, the visibility results imply that visibility impacts are influenced more by the SJGS's sulfur emissions (SO_2 and additional SO_3 from the NO_x control devices) than by the reduction of NO_x. However, sulfur emissions are not subject to BART requirements because New Mexico participates in the WRAP emissions trading program. Therefore, LNB, OFA and NN should be considered BART for NO_x control on the SJGS units.

A summary of the 98th percentile visibility impact for the four modeled technology scenarios (i.e., Pre-Consent Decree, Consent Decree, SCR, and hybrid scenarios) and include the number of days above 0.5 dv threshold and the contribution of each pollutant associated with the 98th percentile visibility impact for each class I area has been included as Attachment 1.

Conclusion

As previously noted in the BART analysis, the recommended BART control for SJGS is LNB, OFA, and a NN for NO_x control and PJFF for PM control.

Table 2 Pre-Consent Decree Modeling Results New Ammonia Background and Nitrate Repartitioning 98th Percentile Impact for Each Year (dv)					
Class I Area	2001	2002	2003	Average	Maximum
Arches	1.92	1.76	1.82	1.83	1.92
Bandelier	1.31	1.86	1.51	1.56	1.86
Black Canyon	1.14	1.34	1.40	1.29	1.40
Canyonlands	2.59	2.04	2.00	2.21	2.59
Capitol Reef	1.97	1.16	1.34	1.49	1.97
Grand Canyon	1.14	0.93	0.81	0.96	1.14
Great Sand Dunes	0.85	1.00	0.82	0.89	1.00
La Garita	1.15	1.30	1.14	1.20	1.30
Maroon Bells	0.67	0.78	0.63	0.70	0.78
Mesa Verde	4.20	4.09	4.85	4.38	4.85
Pecos	1.40	1.33	1.26	1.33	1.40
Petrified Forest	1.13	0.79	0.74	0.88	1.13
San Pedro	1.78	2.37	1.96	2.04	2.37
West Elk	0.99	1.15	0.94	1.03	1.15
Weminuche	1.51	1.85	1.69	1.69	1.85
Wheeler Peak	1.00	0.95	1.05	1.00	1.05
Overall				**1.53**	**4.85**

Table 3 Baseline (Consent Decree) Visibility Modeling Results New Ammonia Background and Nitrate Repartitioning 98th Percentile for Each Year (dv)					
Class I Area	2001	2002	2003	Average	Maximum
Arches	1.69	1.65	1.49	1.61	1.69
Bandelier	1.04	1.56	1.20	1.27	1.56
Black Canyon	0.95	1.15	1.07	1.05	1.15
Canyonlands	2.26	1.73	1.68	1.89	2.26
Capitol Reef	1.81	0.82	1.05	1.23	1.81
Grand Canyon	0.97	0.76	0.57	0.77	0.97
Great Sand Dunes	0.63	0.71	0.64	0.66	0.71
La Garita	0.86	0.94	0.90	0.90	0.94
Maroon Bells	0.54	0.56	0.51	0.54	0.56
Mesa Verde	3.38	3.53	3.80	3.57	3.80
Pecos	1.05	1.09	1.00	1.05	1.09
Petrified Forest	0.82	0.60	0.53	0.65	0.82
San Pedro	1.40	2.01	1.56	1.66	2.01
West Elk	0.80	0.91	0.83	0.85	0.91
Weminuche	1.15	1.48	1.34	1.33	1.48
Wheeler Peak	0.75	0.86	0.89	0.83	0.89
Overall				**1.24**	**3.80**

Table 4 SCR Visibility Modeling Results New Ammonia Background and Nitrate Repartitioning 98th Percentile Impact for Each Year (dv)					
Class I Area	2001	2002	2003	Average	Maximum
Arches	1.72	1.41	1.48	1.54	1.72
Bandelier	0.94	1.30	1.23	1.16	1.30
Black Canyon	0.82	0.83	0.92	0.85	0.92
Canyonlands	2.38	1.73	1.92	2.01	2.38
Capitol Reef	1.43	0.76	0.98	1.06	1.43
Grand Canyon	0.73	0.60	0.56	0.63	0.73
Great Sand Dunes	0.58	0.55	0.47	0.53	0.58
La Garita	0.62	0.70	0.67	0.66	0.70
Maroon Bells	0.42	0.42	0.34	0.39	0.42
Mesa Verde	5.34	5.32	6.00	5.55	6.00
Pecos	0.85	0.99	0.92	0.92	0.99
Petrified Forest	0.73	0.53	0.55	0.61	0.73
San Pedro	1.73	2.05	1.83	1.87	2.05
West Elk	0.64	0.66	0.62	0.64	0.66
Weminuche	1.14	1.61	1.45	1.40	1.61
Wheeler Peak	0.69	0.65	0.66	0.67	0.69
Overall				**1.28**	**6.00**

Table 5
Hybrid Visibility Modeling Results
New Ammonia Background and Nitrate Repartitioning
98th Percentile Impact for Each Year (dv)

Class I Area	2001	2002	2003	Average	Maximum
Arches	1.75	1.59	1.61	1.65	1.75
Bandelier	1.03	1.52	1.27	1.27	1.52
Black Canyon	0.91	1.03	1.06	1.00	1.06
Canyonlands	2.41	1.72	1.89	2.01	2.41
Capitol Reef	1.67	0.74	1.13	1.18	1.67
Grand Canyon	0.87	0.71	0.64	0.74	0.87
Great Sand Dunes	0.72	0.72	0.58	0.67	0.72
La Garita	0.79	0.85	0.82	0.82	0.85
Maroon Bells	0.53	0.55	0.45	0.51	0.55
Mesa Verde	5.17	5.07	5.55	5.26	5.55
Pecos	0.93	1.01	1.00	0.98	1.01
Petrified Forest	0.79	0.56	0.58	0.64	0.79
San Pedro	1.69	2.14	1.81	1.88	2.14
West Elk	0.72	0.80	0.74	0.75	0.80
Weminuche	1.17	1.72	1.34	1.41	1.72
Wheeler Peak	0.81	0.77	0.84	0.81	0.84
Overall				**1.35**	**5.55**

Table 6

Visibility Improvement Cost Effectiveness for Each Class 1 Area (Based on Maximum Visibility Modeling Results)

New Ammonia Background and Nitrate Repartitioning

	Maximum Visibility Modeling Results (dv) (98th Percentile, see Note 1)				Visibility Improvements (dv) Calculated from Maximum Visibility Results (for each Class 1 Area)					Improvement ($/dv) (see Note 4)				
Class 1 Area	Pre-Consent Decree	Consent Decree	SCR	Hybrid	Pre-Consent Decree to Consent Decree	Consent Decree to SCR	Consent Decree to Hybrid	Pre-Consent Decree to SCR	Pre-Consent Decree to Hybrid	Pre-Consent Decree to Consent Decree	Consent Decree to SCR	Consent Decree to Hybrid	Pre-Consent Decree to SCR	Pre-Consent Decree to Hybrid
Arches	1.92	1.69	1.72	1.75	0.23	NI	NI	0.20	0.17	224,751,092	NA	NA	751,691,919	792,941,176
Bandelier	1.86	1.56	1.30	1.52	0.31	0.26	0.04	0.57	0.35	167,648,208	374,488,462	2,136,717,949	262,495,591	389,595,376
Black Canyon	1.40	1.15	0.92	1.06	0.26	0.23	0.09	0.49	0.34	201,835,294	421,502,165	957,839,080	306,244,856	394,152,047
Canyonlands	2.59	2.26	2.38	2.41	0.33	NI	NI	0.21	0.17	158,363,077	NA	NA	715,552,885	774,712,644
Capitol Reef	1.97	1.81	1.43	1.67	0.16	0.38	0.14	0.54	0.30	319,677,019	256,228,947	586,845,070	275,110,906	444,884,488
Grand Canyon	1.14	0.97	0.73	0.87	0.17	0.24	0.10	0.41	0.27	304,544,379	409,105,042	816,980,392	365,687,961	497,416,974
Great Sand Dunes	1.00	0.71	0.58	0.72	0.29	0.13	NI	0.42	0.28	179,331,010	726,619,403	NA	353,527,316	481,428,571
La Garita	1.30	0.94	0.70	0.85	0.36	0.24	0.09	0.60	0.45	142,966,667	402,342,975	905,782,609	247,234,219	298,230,088
Maroon Bells	0.78	0.56	0.42	0.55	0.22	0.14	0.01	0.36	0.23	236,091,743	705,557,971	9,259,111,111	418,075,843	593,832,599
Mesa Verde	4.85	3.80	6.00	5.55	1.06	NI	NI	NI	NI	48,692,526	NA	NA	NA	NA
Pecos	1.40	1.09	0.99	1.01	0.31	0.11	0.08	0.41	0.39	168,196,078	901,546,296	1,004,000,000	359,504,831	346,529,563
Petrified Forest	1.13	0.82	0.73	0.79	0.31	0.08	0.03	0.40	0.34	165,491,961	1,159,130,952	3,205,076,923	376,797,468	400,000,000
San Pedro	2.37	2.01	2.05	2.14	0.36	NI	NI	0.32	0.24	142,966,667	NA	NA	466,567,398	573,617,021
West Elk	1.15	0.91	0.66	0.80	0.24	0.26	0.11	0.49	0.35	216,252,101	381,831,373	737,451,327	301,896,552	384,045,584
Weminuche	1.85	1.48	1.61	1.72	0.37	NI	NI	0.24	0.14	138,727,763	NA	NA	625,357,143	998,518,519
Wheeler Peak	1.05	0.89	0.69	0.84	0.16	0.20	0.05	0.36	0.21	323,698,113	477,289,216	1,543,185,185	410,013,774	632,863,850

Notes:

1. Maximum of 2001, 2002 and 2003 visibility data taken from Tables 1-4 for each Class I Area.
2. NI = No Improvement
3. NA = Not Applicable
4. Total Annualized Costs used in calculating Improvement are as follows (in $1,000):

Pre-Consent Decree to Consent Decree	$51,468
Consent Decree to SCR	$97,367
Consent Decree to Hybrid	$83,332
Pre-Consent Decree to SCR	$148,835
Pre-Consent Decree to Hybrid	$134,800

Attachment 1

PNM SJGS BART Modeling
New NH3 Background and Nitrate Repartitioning
2001

Pre-Consent Decree (4)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	59	1.92	71.14	23.07	1.46	0.89	1.08	2.36	100
BAND	70	1.31	35.48	59.51	1.32	0.81	0.83	2.06	100
BLCA	40	1.14	52.26	45.03	0.71	0.44	0.43	1.13	100
CANY	80	2.59	65.05	28.99	1.51	0.92	1.08	2.44	100
CARE	31	1.97	51.54	43.71	1.15	0.71	1.06	1.83	100
GRCA	14	1.14	42.20	54.25	0.90	0.55	0.65	1.45	100
GRSA	23	0.85	77.31	14.03	2.38	1.46	1.09	3.75	100
LAGA	35	1.15	42.48	54.54	0.77	0.47	0.50	1.24	100
MABE	16	0.67	41.50	54.30	1.08	0.66	0.76	1.70	100
MEVE	184	4.20	84.29	1.94	3.21	1.97	3.57	5.03	100
PECO	53	1.40	43.19	52.60	1.08	0.66	0.76	1.71	100
PEFO	18	1.13	84.94	9.80	1.30	0.79	1.11	2.06	100
SAPE	111	1.78	79.88	8.73	2.70	1.65	2.83	4.20	100
WEEL	34	0.99	40.76	54.57	1.20	0.73	0.85	1.89	100
WEMI	74	1.51	26.70	66.76	1.53	0.94	1.66	2.40	100
WHPE	37	1.00	32.06	63.10	1.28	0.78	0.76	2.02	100

Consent Decree (3)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	47	1.69	33.57	62.13	1.88	0.48	0.48	1.46	100
BAND	49	1.04	30.40	66.83	1.26	0.32	0.23	0.97	100
BLCA	26	0.95	37.13	57.66	2.28	0.58	0.58	1.76	100
CANY	67	2.26	55.66	38.57	2.53	0.65	0.62	1.98	100
CARE	28	1.81	52.95	42.68	1.91	0.49	0.48	1.49	100
GRCA	12	0.97	38.14	59.75	0.93	0.24	0.19	0.75	100
GRSA	14	0.63	38.82	54.18	3.18	0.81	0.53	2.47	100
LAGA	20	0.86	38.38	59.80	0.81	0.21	0.15	0.65	100
MABE	10	0.54	69.46	25.41	2.29	0.59	0.43	1.83	100
MEVE	157	3.38	75.39	9.84	6.26	1.60	2.09	4.82	100
PECO	35	1.05	80.51	15.41	1.83	0.47	0.36	1.43	100
PEFO	14	0.82	27.95	69.41	1.18	0.30	0.25	0.92	100
SAPE	93	1.40	39.89	53.93	2.71	0.69	0.68	2.09	100
WEEL	19	0.80	37.76	60.62	0.70	0.18	0.19	0.55	100
WEMI	53	1.15	28.74	65.59	2.44	0.62	0.72	1.88	100
WHPE	27	0.75	30.82	66.18	1.36	0.35	0.23	1.06	100

SCR (2)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	50	1.72	94.35	0.92	2.11	0.54	0.37	1.71	100
BAND	48	0.94	85.85	8.21	2.65	0.68	0.56	2.06	100
BLCA	23	0.82	81.07	12.87	2.66	0.68	0.67	2.05	100
CANY	77	2.38	89.46	5.07	2.40	0.61	0.58	1.87	100
CARE	27	1.43	90.43	3.73	2.54	0.65	0.66	1.99	100
GRCA	11	0.73	85.62	9.25	2.24	0.57	0.54	1.77	100
GRSA	10	0.58	93.53	2.68	1.67	0.43	0.41	1.29	100
LAGA	13	0.62	94.70	0.31	2.25	0.57	0.42	1.75	100
MABE	5	0.42	94.65	1.90	1.53	0.39	0.33	1.20	100
MEVE	174	5.34	93.13	1.46	2.33	0.60	0.68	1.80	100
PECO	30	0.85	88.59	7.59	1.71	0.44	0.35	1.33	100
PEFO	13	0.73	92.85	1.81	2.34	0.60	0.58	1.81	100
SAPE	93	1.73	89.63	1.59	3.83	0.98	1.02	2.95	100
WEEL	14	0.64	91.43	4.42	1.84	0.47	0.37	1.46	100
WEMI	44	1.14	83.29	13.93	1.24	0.32	0.24	0.99	100
WHPE	19	0.69	79.78	16.37	1.73	0.44	0.33	1.34	100

Hybrid (1)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	54	1.75	86.81	7.39	2.56	0.65	0.58	2.01	100
BAND	51	1.03	72.28	22.33	2.41	0.61	0.50	1.87	100
BLCA	25	0.91	66.97	27.65	2.36	0.60	0.60	1.82	100
CANY	79	2.41	84.50	10.46	2.19	0.56	0.58	1.71	100
CARE	29	1.67	54.89	43.68	0.63	0.16	0.12	0.52	100
GRCA	11	0.87	60.05	37.58	1.05	0.27	0.22	0.84	100
GRSA	14	0.72	73.17	20.08	3.08	0.79	0.51	2.38	100
LAGA	16	0.79	46.38	50.73	1.26	0.32	0.33	0.97	100
MABE	9	0.53	62.93	33.71	1.52	0.39	0.27	1.19	100
MEVE	174	5.17	90.57	3.81	2.43	0.62	0.70	1.88	100
PECO	37	0.93	77.26	19.26	1.55	0.40	0.32	1.21	100
PEFO	14	0.79	51.23	46.41	1.02	0.26	0.29	0.79	100
SAPE	102	1.69	88.26	6.70	2.18	0.56	0.63	1.68	100
WEEL	19	0.72	55.94	42.36	0.77	0.20	0.13	0.61	100
WEMI	52	1.17	56.13	39.71	1.82	0.46	0.47	1.41	100
WHPE	23	0.81	81.91	13.74	1.94	0.49	0.41	1.51	100

PNM SJGS BART Modeling
New NH3 Background and Nitrate Repartitioning
2002

Pre-Consent Decree (4)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	46	1.76	43.87	46.41	2.37	1.45	2.20	3.70	100
BAND	87	1.86	44.28	49.89	1.45	0.89	1.18	2.31	100
BLCA	54	1.34	35.37	59.23	1.36	0.83	1.04	2.17	100
CANY	67	2.04	83.50	1.79	3.67	2.25	3.05	5.74	100
CARE	24	1.16	33.88	63.47	0.67	0.41	0.49	1.09	100
GRCA	15	0.93	89.85	2.03	2.09	1.28	1.45	3.30	100
GRSA	28	1.00	82.39	12.99	1.20	0.73	0.78	1.90	100
LAGA	63	1.30	81.37	13.32	1.40	0.86	0.81	2.24	100
MABE	20	0.78	28.96	63.27	2.15	1.32	0.80	3.49	100
MEVE	184	4.09	34.40	60.73	1.18	0.72	1.11	1.87	100
PECO	62	1.33	53.02	40.33	1.81	1.11	0.89	2.85	100
PEFO	16	0.79	90.95	1.94	1.81	1.11	1.31	2.89	100
SAPE	125	2.37	71.74	23.38	1.23	0.75	0.94	1.96	100
WEEL	43	1.15	35.15	60.78	1.03	0.63	0.76	1.65	100
WEMI	117	1.85	57.89	29.83	2.89	1.77	3.13	4.49	100
WHPE	40	0.95	55.69	38.20	1.67	1.02	0.74	2.67	100

Consent Decree (3)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	32	1.65	49.70	47.38	1.28	0.33	0.30	1.01	100
BAND	61	1.56	37.39	59.91	1.19	0.30	0.27	0.93	100
BLCA	30	1.15	31.11	65.99	1.28	0.33	0.28	1.02	100
CANY	57	1.73	52.51	43.96	1.55	0.40	0.35	1.23	100
CARE	18	0.82	91.30	1.66	3.11	0.79	0.69	2.46	100
GRCA	10	0.76	44.30	54.26	0.64	0.16	0.12	0.52	100
GRSA	17	0.71	28.48	69.87	0.74	0.19	0.13	0.60	100
LAGA	40	0.94	26.32	71.29	1.07	0.27	0.22	0.84	100
MABE	11	0.56	84.39	12.71	1.31	0.33	0.23	1.03	100
MEVE	162	3.53	85.08	5.44	4.14	1.06	1.04	3.24	100
PECO	41	1.09	41.87	56.64	0.66	0.17	0.13	0.53	100
PEFO	9	0.60	28.65	69.64	0.76	0.19	0.13	0.62	100
SAPE	109	2.01	46.15	47.36	2.82	0.72	0.76	2.19	100
WEEL	24	0.91	30.66	67.44	0.86	0.22	0.14	0.68	100
WEMI	83	1.48	57.20	35.77	3.02	0.77	0.91	2.32	100
WHPE	20	0.86	47.51	47.27	2.35	0.60	0.43	1.84	100

SCR (2)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	37	1.41	86.10	10.46	1.51	0.39	0.36	1.20	100
BAND	58	1.30	81.38	16.06	1.14	0.29	0.23	0.90	100
BLCA	26	0.83	76.99	18.90	1.81	0.46	0.39	1.44	100
CANY	59	1.73	91.73	1.93	2.72	0.69	0.83	2.09	100
CARE	13	0.76	95.94	0.19	1.73	0.44	0.35	1.36	100
GRCA	11	0.60	80.95	16.20	1.26	0.32	0.24	1.03	100
GRSA	9	0.55	71.96	25.33	1.21	0.31	0.22	0.97	100
LAGA	24	0.70	94.09	2.99	1.32	0.34	0.23	1.04	100
MABE	4	0.42	81.39	13.63	2.25	0.57	0.39	1.77	100
MEVE	187	5.32	92.89	0.87	2.67	0.68	0.83	2.06	100
PECO	33	0.99	85.79	9.66	2.10	0.54	0.29	1.63	100
PEFO	8	0.53	96.11	0.51	1.51	0.39	0.27	1.21	100
SAPE	102	2.05	85.01	8.65	2.76	0.70	0.74	2.14	100
WEEL	18	0.66	75.86	18.85	2.30	0.59	0.63	1.77	100
WEMI	77	1.61	85.59	11.64	1.23	0.31	0.25	0.98	100
WHPE	15	0.65	93.52	2.29	1.87	0.48	0.37	1.47	100

Hybrid (1)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	37	1.59	68.58	27.60	1.67	0.43	0.41	1.31	100
BAND	65	1.52	65.99	30.36	1.61	0.41	0.36	1.27	100
BLCA	32	1.03	56.84	39.89	1.44	0.37	0.31	1.15	100
CANY	58	1.72	77.17	19.27	1.57	0.40	0.35	1.24	100
CARE	16	0.74	95.41	0.62	1.77	0.45	0.35	1.39	100
GRCA	11	0.71	62.84	34.03	1.37	0.35	0.35	1.06	100
GRSA	13	0.72	92.69	4.29	1.37	0.35	0.22	1.08	100
LAGA	34	0.85	53.84	44.21	0.87	0.22	0.18	0.69	100
MABE	9	0.55	90.36	6.66	1.32	0.34	0.30	1.03	100
MEVE	188	5.07	90.60	2.77	2.84	0.72	0.88	2.19	100
PECO	43	1.01	90.35	4.34	2.43	0.62	0.37	1.90	100
PEFO	10	0.56	51.18	46.06	1.23	0.31	0.20	1.01	100
SAPE	111	2.14	75.45	21.93	1.16	0.30	0.25	0.92	100
WEEL	27	0.80	51.82	44.69	1.52	0.39	0.41	1.18	100
WEMI	89	1.72	61.84	35.59	1.14	0.29	0.24	0.91	100
WHPE	19	0.77	75.30	20.88	1.75	0.45	0.23	1.39	100

PNM SJGS BART Modeling
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Pre-Consent Decree (4)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	39	1.82	38.16	50.64	2.67	1.63	2.75	4.15	100
BAND	77	1.51	40.84	49.83	2.33	1.43	1.94	3.63	100
BLCA	30	1.40	29.26	67.79	0.76	0.46	0.52	1.21	100
CANY	57	2.00	64.92	31.30	0.94	0.58	0.72	1.53	100
CARE	25	1.34	43.68	49.81	1.57	0.96	1.51	2.47	100
GRCA	11	0.81	91.83	0.94	1.83	1.12	1.34	2.94	100
GRSA	26	0.82	50.03	45.62	1.12	0.68	0.79	1.76	100
LAGA	40	1.14	25.27	67.60	2.02	1.24	0.66	3.22	100
MABE	15	0.63	36.60	57.88	1.53	0.94	0.65	2.41	100
MEVE	174	4.85	69.32	17.06	3.27	2.00	3.22	5.14	100
PECO	63	1.26	49.00	43.40	1.87	1.15	1.66	2.93	100
PEFO	17	0.74	88.02	6.36	1.46	0.90	0.89	2.36	100
SAPE	127	1.96	80.84	9.41	2.36	1.45	2.22	3.73	100
WEEL	31	0.94	25.57	71.56	0.70	0.43	0.61	1.12	100
WEMI	87	1.69	40.63	54.52	1.17	0.72	1.13	1.84	100
WHPE	48	1.05	48.42	48.68	0.78	0.48	0.39	1.25	100

Consent Decree (3)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	27	1.49	30.95	67.01	0.89	0.23	0.21	0.71	100
BAND	57	1.20	77.97	17.21	2.11	0.54	0.52	1.65	100
BLCA	21	1.07	27.98	70.17	0.82	0.21	0.17	0.65	100
CANY	48	1.68	70.45	24.81	2.07	0.53	0.49	1.65	100
CARE	23	1.05	52.60	45.24	0.94	0.24	0.20	0.77	100
GRCA	9	0.57	93.89	1.17	2.19	0.56	0.46	1.74	100
GRSA	15	0.64	27.42	70.94	0.76	0.19	0.09	0.60	100
LAGA	28	0.90	23.76	71.98	1.99	0.51	0.18	1.58	100
MABE	8	0.51	27.63	69.59	1.22	0.31	0.28	0.97	100
MEVE	159	3.80	41.19	53.18	2.41	0.62	0.72	1.88	100
PECO	50	1.00	51.25	46.75	0.89	0.23	0.18	0.70	100
PEFO	9	0.53	32.43	65.01	1.15	0.29	0.18	0.93	100
SAPE	97	1.56	37.04	56.49	2.78	0.71	0.83	2.15	100
WEEL	22	0.83	28.10	67.91	1.74	0.44	0.44	1.36	100
WEMI	63	1.34	36.23	61.45	1.00	0.26	0.29	0.77	100
WHPE	27	0.89	91.09	5.38	1.60	0.41	0.26	1.25	100

SCR (2)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	33	1.48	82.68	10.62	2.89	0.74	0.84	2.23	100
BAND	54	1.23	90.04	4.35	2.54	0.65	0.43	1.98	100
BLCA	16	0.92	86.11	9.21	2.04	0.52	0.53	1.60	100
CANY	51	1.92	93.39	1.65	2.13	0.54	0.65	1.64	100
CARE	22	0.98	81.69	13.72	1.99	0.51	0.54	1.54	100
GRCA	9	0.56	93.81	1.80	1.93	0.49	0.43	1.54	100
GRSA	6	0.47	86.63	9.72	1.63	0.42	0.34	1.27	100
LAGA	17	0.67	73.76	20.28	2.75	0.70	0.25	2.25	100
MABE	3	0.34	79.31	17.67	1.32	0.34	0.32	1.04	100
MEVE	169	6.00	88.68	0.13	4.74	1.21	1.60	3.64	100
PECO	43	0.92	94.42	2.24	1.47	0.38	0.34	1.15	100
PEFO	11	0.55	92.48	3.80	1.66	0.42	0.29	1.34	100
SAPE	102	1.83	94.34	1.46	1.85	0.47	0.44	1.44	100
WEEL	11	0.62	77.34	17.32	2.34	0.60	0.59	1.82	100
WEMI	64	1.45	89.59	2.31	3.46	0.88	1.09	2.66	100
WHPE	18	0.66	83.73	13.71	1.16	0.30	0.18	0.92	100

Hybrid (1)

Class I Area	No. of Days > 0.5 dv	98th Percentile	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_Total
ARCH	33	1.61	90.58	4.37	2.23	0.57	0.44	1.81	100
BAND	61	1.27	81.94	12.64	2.46	0.63	0.42	1.91	100
BLCA	18	1.06	85.53	9.51	2.15	0.55	0.59	1.68	100
CANY	54	1.89	90.28	4.66	2.17	0.55	0.66	1.67	100
CARE	22	1.13	66.11	29.95	1.71	0.44	0.47	1.33	100
GRCA	9	0.64	72.51	24.95	1.12	0.29	0.23	0.90	100
GRSA	12	0.58	56.57	40.05	1.52	0.39	0.10	1.37	100
LAGA	23	0.82	70.71	26.11	1.40	0.36	0.32	1.09	100
MABE	6	0.45	56.85	40.90	0.99	0.25	0.24	0.77	100
MEVE	172	5.55	87.05	0.55	5.25	1.34	1.77	4.04	100
PECO	48	1.00	76.28	20.18	1.61	0.41	0.25	1.27	100
PEFO	10	0.58	85.18	11.26	1.59	0.41	0.28	1.28	100
SAPE	103	1.81	91.07	4.68	1.87	0.48	0.45	1.45	100
WEEL	18	0.74	62.54	33.72	1.63	0.42	0.40	1.29	100
WEMI	69	1.34	80.10	10.76	3.91	1.00	1.14	3.10	100
WHPE	25	0.84	78.02	17.94	1.85	0.47	0.25	1.46	100